

IN THE CLAIMS

1. (Withdrawn): An apparatus for transferring digital data at a high rate between a host device and a client device over a communication path for presentation to a user, comprising:

means for generating one or more of a plurality of pre-defined packet structures and linking them together to form a pre-defined communication protocol;

means for communicating a pre-selected set of digital control and presentation data between said host device and said client device over said communication path using said predefined communication protocol;

means for coupling at least one host link controller residing in said host device to said client device through said communications path, the at least one host link controller being configured to generate, transmit, and receive a plurality of packets forming said communications protocol, and to form digital presentation data into one or more types of data packets from the plurality of packets; and

means for transferring data in a packet form over said communications path using said at least one host link controller.

2. (Withdrawn): The apparatus of Claim 1 further comprising means for grouping said plurality of packets together within media frames for communication between said host and client, the media frames having a pre-defined fixed length with a pre-determined number of said plurality of packets having differing and variable lengths.

3. (Withdrawn): The apparatus of Claim 2 further comprising:

means for negotiating between host and client link drivers using one of a plurality of transfer modes in each direction, each allowing a transfer of a different maximum number of bits of data in parallel over a given time period; and

means for dynamically adjusting between said transfer modes during a transfer of data.

4. (Withdrawn): The apparatus of Claim 1 further comprising means for commencing transfer of the plurality of packets from said host device with a Sub-frame Header type packet from the plurality of packets.

5. (Withdrawn): The apparatus of Claim 1 further comprising means for transferring information between said host and client devices bi-directionally over said communications path.

6. (Withdrawn): The apparatus of Claim 1 further comprising means for transferring data from said host device to said client device for presentation to a client user using one or more Video Stream type packets from the plurality of packets for video type data, and Audio Stream type packets from the plurality of packets for audio type data.

7. (Withdrawn): The apparatus of Claim 1 further comprising means for transferring data from said client device to said host device using one or more Reverse Link Encapsulation type packets from the plurality of packets.

8. (Withdrawn): The apparatus of Claim 1 further comprising means for requesting display capabilities information from the client device by the at least one host link controller so as to determine what type of data and data rates said client device is capable of accommodating through said interface.

9. (Withdrawn): The apparatus of Claim 8 further comprising means for communicating the display capabilities information or presentation capabilities information from a client link controller to said at least one host link controller using at least one Display Capability type packet from the plurality of packets.

10. (Withdrawn): The apparatus of Claim 1 wherein said communication path comprises a cable having a series of four or more conductors and a shield.

11. (Withdrawn): The apparatus of Claim 1 further comprising means for operating a USB data interface by said at least one host link controller as a part of said communication path.

12. (Withdrawn): The apparatus of Claim 1 further comprising means for storing multimedia data to be transferred to said client device at said host device.

13. (Withdrawn): The apparatus of Claim 1 further comprising means for generating Filler type packets from the plurality of packets by said host device to occupy periods of forward link transmission that do not have data.

14. (Withdrawn): The apparatus of Claim 1 further comprising means for transferring interface-user defined data using User-Defined Stream type packets from the plurality of packets.

15. (Withdrawn): The apparatus of Claim 1 further comprising means for transferring data to or from user input devices associated with said client device using Keyboard Data and Pointing Device Data type packets from the plurality of packets.

16. (Withdrawn): The apparatus of Claim 1 further comprising means for terminating transfer of data in either direction over said communication path using a Link Shutdown type packet from the plurality of packets for transmission by said host device to said client device.

17. (Withdrawn): A communication system for transferring digital data at a high rate between a host device and a client device over a communication path, the system comprising:

a processor, said processor configured to generate one or more of a plurality of pre-defined packet structures and link them together to form a pre-defined

communication protocol; to form digital presentation data into one or more types of data packets; communicate a pre-selected set of digital control and presentation data between said host device and said client device over the communication path using the communication protocol; and transfer data in packet form over the communication path.

18. (Previously Presented): A method for power reduction in a digital data interface communication data link, the method comprising:

- sending a link shut down packet from a host device to a client device;
- disabling a data driver to a high impedance state by the host device to place the digital data interface communication data link in hibernation;
- providing a logic one to a data line to drive the data line to a logic one state;
- toggling a strobe for a first predetermined period of time;
- driving the data line to a zero state and toggling the strobe for a second predetermined period of time to wake up the digital data interface communication data link; and
- transmitting a sub-frame header packet.

19. (Previously Presented): The method of claim 18 wherein disabling the data driver comprises producing a high impedance state to define a zero logic state while the communication data link is in hibernation.

20. (Previously Presented): The method of claim 18 wherein providing a logic one to the data line comprises providing the logic one by the host device.

21. (Previously Presented): The method of claim 18 wherein the data driver comprises a strobe driver.

22. (Previously Presented): The method of claim 18 wherein providing a logic one to the data line comprises providing the logic one by the client device causing the host device to drive the data line to the logic one.

23. (Previously Presented): The method of claim 18 further comprising conserving power during a time when data is not being transferred to and from the host device and client device.

24. (Previously Presented): A method of placing a digital data interface communication data link in a hibernation mode, the method comprising:

 sending a link shut down packet from a host device to a client device; and
 disabling a data driver to a high impedance state by the host device.

25. (Previously Presented): The method of claim 24 wherein disabling the data driver comprises producing a high impedance state to define a zero logic state while the communication data link is in hibernation.

26. (Previously Presented): The method of claim 25 wherein the data driver comprises a strobe driver.

27. (Withdrawn): A method of restarting a digital data interface communication data link from a hibernation mode, the method comprising:

 providing a logic one to a data line to drive the data line to a logic one state;
 toggling a strobe for a first predetermined period of time;
 driving the data line to a zero state and toggling the strobe for a second predetermined period of time to wake up the digital data interface communication data link; and
 transmitting a sub-frame header packet.

28. (Withdrawn): The method of claim 27 wherein the data driver comprises a strobe driver.

29. (Withdrawn): The method of claim 27 wherein providing a logic one to the data line comprises providing the logic one by the host device.

30. (Withdrawn): The method of claim 27 wherein providing a logic one to the data line comprises providing the logic one by the client device causing the host device to drive the data line to the logic one.

31. (Previously Presented): A computer program product, comprising:
computer readable medium comprising:

code for causing a link shut down packet in a digital data interface communication data link to be sent from a host device to a client device;

code for causing a data driver to be disabled to a high impedance state by the host device to place the digital data interface communication data link in hibernation;

code for causing a logic one to be provided to a data line to drive the data line to a logic one state;

code for causing a strobe to be toggled for a first predetermined period of time;

code for causing the data line to be driven to a zero state and toggling the strobe for a second predetermined period of time to wake up the digital data interface communication data link; and

code for causing a sub-frame header packet to be transmitted.

32. (Previously Presented): A computer program product, comprising:
computer readable medium comprising:

code for causing a link shut down packet in a digital data interface communication data link to be sent from a host device to a client device; and

code for causing a data driver to be disabled to a high impedance state by the host device.

33. (Withdrawn): A computer program product, comprising:
computer readable medium comprising;

code for causing a logic one to a data line to drive the data line to a logic one state for restarting a digital data interface communication data link from a hibernation mode;

code for causing a strobe to be toggled for a first predetermined period of time;

code for causing the data line to be driven to a zero state and for toggling the strobe for a second predetermined period of time to wake up the digital data interface communication data link; and

code for causing a sub-frame header packet to be transmitted.

34. (Previously Presented): An apparatus for power reduction in a digital data interface communication data link, the apparatus comprising:

means for sending a link shut down packet from a host device to a client device;

means for disabling a data driver to a high impedance state by the host device to place the digital data interface communication data link in hibernation;

means for providing a logic one to a data line to drive the data line to a logic one state;

means for toggling a strobe for a first predetermined period of time;

means for driving the data line to a zero state and toggling the strobe for a second predetermined period of time to wake up the digital data interface communication data link; and

means for transmitting a sub-frame header packet.

35. (Previously Presented): The apparatus of claim 34 wherein the means for disabling the data driver comprises means for producing a high impedance state to define a zero logic state while the communication data link is in hibernation.

36. (Previously Presented): The apparatus of claim 34 wherein the means for providing a logic one to the data line comprises means for providing the logic one by the host device.

37. (Previously Presented): The apparatus of claim 34 wherein the data driver comprises a strobe driver.

38. (Previously Presented): The apparatus of claim 34 wherein means for providing a logic one to the data line comprises means for providing the logic one by the client device causing the host device to drive the data line to the logic one.

39. (Previously Presented): The apparatus of claim 34 further comprises means for conserving power during a time when data is not being transferred to and from the host device and client device.

40. (Previously Presented): An apparatus for placing a digital data interface communication data link in a hibernation mode, the apparatus comprising:

means for sending a link shut down packet from a host device to a client device;
and

means for disabling a data driver to a high impedance state by the host device.

41. (Previously Presented): The apparatus of claim 40 wherein the means for disabling the data driver comprises means for producing a high impedance state to define a zero logic state while the communication data link is in hibernation.

42. (Previously Presented): The apparatus of claim 41 wherein the data driver comprises a strobe driver.

43. (Withdrawn): An apparatus for restarting a digital data interface communication data link from a hibernation mode, the apparatus comprising:

means for providing a logic one to a data line to drive the data line to a logic one state;

means for toggling a strobe for a first predetermined period of time;

means for driving the data line to a zero state and toggling the strobe for a second predetermined period of time to wake up the digital data interface communication data link; and

means for transmitting a sub-frame header packet.

44. (Withdrawn): The apparatus of claim 43 wherein the data driver comprises a strobe driver.

45. (Withdrawn): The apparatus of claim 43 wherein the means for providing a logic one to the data line comprises means for providing the logic one by the host device.

46. (Withdrawn): The apparatus of claim 43 wherein the means for providing a logic one to the data line comprises means for providing the logic one by the client device causing the host device to drive the data line to the logic one.